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Jameco Part Number 163395

1633915

SPECIFICATIONS: 2 PHASE BIPOLAR	ROTOR INERTIA: 20 G·CM² (.28 OZ·IN²) NOM.
STEPS PER REVOLUTION: 200 (400 HALF STEPS)	HOLDING TORQUE: 791 ±108 G·CM (11 ±1.5 OZ·IN) [18]
STEP ANGLE: 1.8° (0.9° PER HALF STEP) [6]	DETENT TORQUE: 36 G·CM (.5 OZ·IN) NOM.
STEP TO STEP ACCURACY (NOTES 1, 2): ±6 % (HALF STEP)	PULL OUT TORQUE: 345 ±72 G·CM (4.8 ±1.0 OZ·IN) [15]
POSITIONAL ACCURACY (NOTES 1, 3): ± 6 % (HALF STEP)	INSULATION CLASS: B MIN.
DC PHASE RESISTANCE: 28 Ω ± 10 % AT 25°C	BEARINGS: AISI 52100 STEEL OR EQUIV. [20]
PHASE INDUCTANCE: 25 ± 4 mH @ 1 KHz [16]	AMBIENT TEMP. RANGE: 4 TO 50 °C (OPERATING)
PHASE VOLTAGE: 6.0 VDC	WEIGHT: .28 KG (10 OZ) NOMINAL
PHASE CURRENT: .220 A (CONT.)	STORAGE TEMP. RANGE: -40 TO 60° C
SHAFT RUNOUT: SEE SHEET 1. TIR. MAX. MEASURED	HYSTERESIS: BETWEEN +2.0% & 7.0 % OF HALF STEP [8]
1,27 (.050) FROM OUTPUT SHAFT END.	STEP POSITION REPEATABILITY: ±1% OF HALF STEP.
RADIAL PLAY: NOTE [11] 0.013 (.0005) MAX. BEFORE R.T.V. IS USED.	
END PLAY: NOTE [10] LOAD APPLIED TO END OF OUTPUT SHAFT. SEE SHEET 1	RELATIVE HUMIDITY: 8 TO 80%

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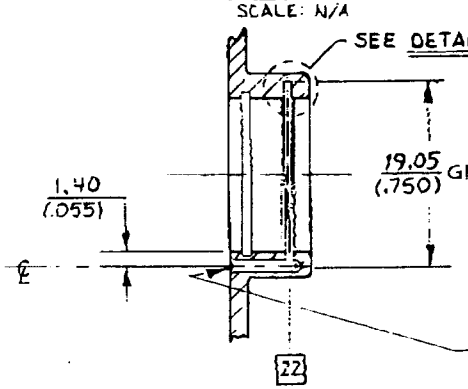
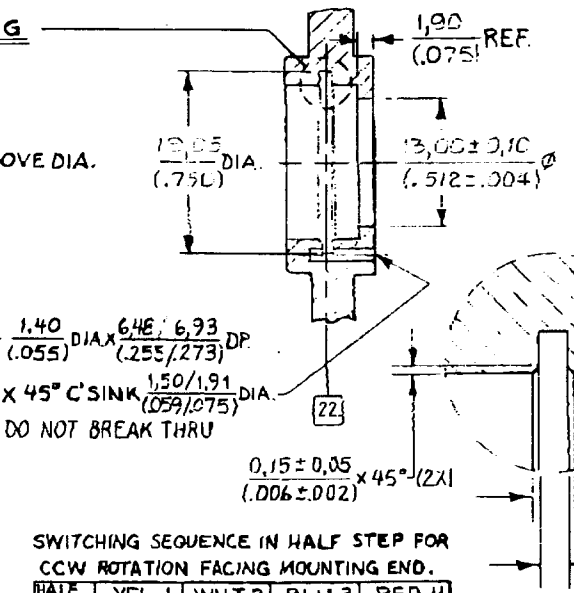
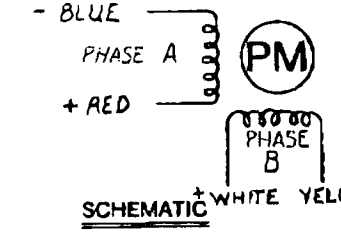
NOTES:
1. MEASUREMENTS MADE AT RATED CURRENT EACH PHASE.
2. BETWEEN ANY TWO ADJACENT STEP POSITIONS.
3. MAXIMUM ERROR IN 360°.
4. HIPOT A.C.: 500V/1 MINUTE BETWEEN LEAD & FRAME.
5. LEADS: 4, AWG 26, 7 STRAND MIN., UL AND CSA APPROVED. PVC INSULATION.
6. INSULATION RESISTANCE: 100 MΩ MIN. AT 500 VDC, BETWEEN WINDING & FRAME.
7. MOTOR IS TO BE DRIVEN BIPOLAR.
8. USE ST-425 DRIVER WITH 12 VDC POWER SUPPLY.
9. END BELLS, SINTERED IRON C 10 6.2 GM/cc (.224 LB/IN³) DENSITY.
10. SHAFT MOVEMENT TO BE 0.0025 (.0001) TO 0.025 (.001) IN DIRECTION SHOWN, WITH 1.36 KG (3 LB) LOAD. SHAFT MUST RETURN TO WITHIN 0.005 (.0002) OF ORIGINAL POSITION WHEN LOAD IS REMOVED.
11. THE NET DISPLACEMENT OF THE SHAFT SHALL BE ≤ 0,0015 (.000060) AFTER APPLYING & REMOVING A 1.36 KG (3 LB) LOAD AT POINTS [L] 180° APART.
12. DO NOT BREAK THRU OR SEAL INSIDE.
13. SHAFT: RB80 MIN., AISI 303 STAINLESS STEEL.
14. MAX DIAGONAL - REAR END BELL - FRONT OPTIONAL (2X)
15. AT 300 HALF SPS, 12 V POWER SUPPLY, 20Ω SERIES RESISTOR. USE HALF STEP SEQUENCE.
16. USE GENRAD 1657 DIGIBRIDGE OR EQUIVALENT.
17. "SUNCOAT" GR-303 (BLACK), BLACK OXIDE TREATED W/ CASTROL DW-924 DEWATERING AGENT.
18. 2 (TWO) PHASES ON AT RATED CURRENT, EACH PHASE, FULL STEP.
19. ALL EXTERIOR SURFACES SHALL BE FREE OF NON-DRY OIL OR GREASE. ANY CONTAMINANTS ON THESE SURFACES MUST BE REMOVABLE BY PRESSURIZED AIR.
20. BEACON 325 WITH 20% FILL, ABEC 3, SHIELDED, BALLS.
21. LABEL TO INCLUDE AMP P/N AND REV. LEVEL.
22. CENTERLINE OF GROOVE SHALL BE LOCATED AT CENTER OF BEARING WIDTH ±0,5 (±.02) PROVIDING BEARING FLAT DIMENSION ≥ 3,56 (.140).
23. O.D. OF BEARING TO BE FREE OF LOOSE PARTICLES, GREASE, OIL OR OTHER CONTAMINATION FOR R.T.V. PROCESS.
24. PARTS SHALL BE PACKAGED SUCH THAT A 1.07 (42) DROP TO A HARD SURFACE WILL NOT CAUSE ANY DAMAGE EITHER FUNCTIONAL OR COSMETIC.
25. THE FOLLOWING CONDITIONS MUST BE WITHSTOOD FOR TWO (2) WEEKS WITHOUT FORMATION OF VISIBLE RUST OR CORROSION ON ANY EXTERNAL PARTS. AMBIENT TEMP.: 60° C. RELATIVE HUMIDITY: 80%.
26. FLATNESS: FRONT FACE OF THE MOTOR SHALL BE FLAT WITHIN 50 μm (.002 IN.) WHEN CLAMPED TO A FLAT SURFACE WITH 2 MOUNTING SCREWS AT 1.13 N·m (10 IN-LB) TORQUE.

DETAIL B
SCALE: N/A



DETAIL C
SCALE: N/A





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SWITCHING SEQUENCE FOR CCW ROTATION FACING MOUNTING END

STEP	BLUE PIN 3	RED PIN 4	WHT PIN 2	YEL PIN 1
0	—	+	+	—
1	+	—	+	—
2	+	—	—	+
3	—	+	—	+
4	—	+	+	—

SWITCHING SEQUENCE IN HALF STEP FOR CCW ROTATION FACING MOUNTING END.

HALF STEP	YEL 1	WHT 2	BLU 3	RED 4
0	—	+	—	+
1	—	+	OFF	OFF
2	—	+	+	—
3	OFF	OFF	+	—
4	+	—	+	—
5	+	—	OFF	OFF
6	+	—	—	+
7	OFF	OFF	—	+
8	—	+	—	+

DETAIL G
SCALE: NONE

UNLESS SPECIFIED TOLERANCES TO BE: DECIMAL MIN (INCH): 1 PLACE ± 0.05, 2 PLACE ± 0.13 (.005), 3 PLACE ± .010; FRACTIONS ± 1/64; BREAK ALL SHARP CORNERS BY .005 - .015

TYP. FINISH: CONCENTRICITY, FLATNESS, STRAIGHTNESS, PARALLEL, PERPENDICULAR, ANGULAR ± 2°

ECR NO.	DESCRIPTION	APVD	DATE	REV
1767	SEE ECN	JK	12-6-84	B
1533	[illegible]	[illegible]	11-21-83	A
1533	INITIAL RELEASE	[illegible]	11-11-83	—

DWG	ROB	11-11-83	SCALE: 2 to 1
CHKD	[illegible]	11-16-83	
APVD	JK	12-6-84	30210-001 REV. A
APVD			54106-001 REV. P1185
HEAT TREAT			

TITLE: MOTOR OUTLINE

APPLIED MOTION PRODUCTS, INC.
SCOTTS VALLEY, CA 95066

MATERIAL NOTES 9., 13.

FINISH SEE NOTE 17 OR ENGINEER APPROVED EQUIVALENT.

DWG. NO. 5017-935
SHEET 2 OF 2

SPECIFICATIONS: SEE SHEET 2

NOTES: SEE SHEET 2

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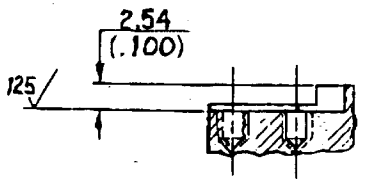
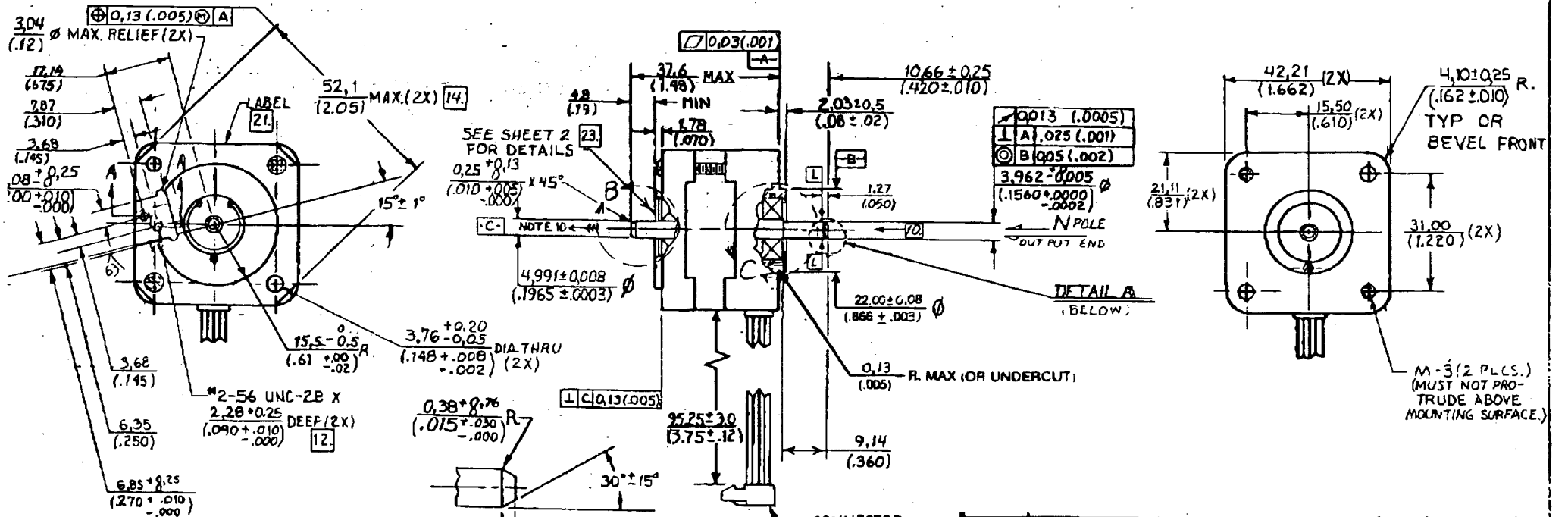


SECTION AA 2:1



ECR NO.	DESCRIPTION	APVD	DATE	REV
DWG	ROB	11-11-83	FULL SCALE	
CHKD		11-16-83		
APVD	JK	12-6-84	54106-001 REV. P1185 30210-001 REV. A	
APVD				
HEAT TREAT				

UNLESS SPECIFIED TOLERANCES TO BE: DECIMAL 1 PLACE ± 0.25 (.010); 2 PLACE ± 0.13 (.005); 3 PLACE ± .127 (.005); FRACTIONS ± 1/64; BREAK ALL SHARP CORNERS .01 - .015; CONCENTRIC RN; FLATNESS; STRAIGHTNESS; PARALLEL; PERPENDICULAR; ANGULAR ± 0°

TITLE: MOTOR OUTLINE

APPLIED MOTION PRODUCTS, INC. SCOTTS VALLEY, CA. 95066

MATERIAL NOTES 9 & 13.

FINISH NOTE 17

DWG. NO. 5017-935

SHEET 1 OF 2